

I claim:

1. A small air pump comprising a solenoid assembly and an air chamber assembly, wherein:

the solenoid assembly includes:

5 a pliable pad which has an annular pad ring with a center opening
 and a circular trough formed on the annular pad ring;

 a bottom shell which has a lower retaining rim extending downwards
 from the bottom thereof slightly smaller than the center opening
 and an upper retaining rim extending upwards from the perimeter
10 thereof;

 a solenoid element which is a standard element connecting to
 conductive wires for plugging to an electric power supply to
 allow a magnetic disc located on the top end thereof to generate
 magnetic force;

15 an upper shell which is coupled with the bottom shell for housing the
 solenoid element having a hollow housing compartment at an
 upper portion that has an inner wall with a plurality of L-shaped
 troughs formed thereon, and a bottom section with a jutting rim
 slightly smaller than the upper retaining rim of the bottom shell;
20 and

 a lower polar plate coupled on the magnetic disc of the solenoid

element to evenly distribute the magnetic force and expand the range of the magnetic force;

the air chamber assembly includes:

an upper polar plate corresponding to the lower polar plate;

5 a rubber cap made from rubber and formed in a cap-shape having a housing chamber which has a bottom fastening to the lower polar plate;

an air chamber seat which has a flange extending from the bottom rim to couple with the rubber cap, and an air discharge chamber
10 and an air intake chamber formed respectively on an upper side and a lower side in opposite directions, the air discharge chamber and the air intake chamber having respectively an air vent on one side to couple respectively with a spacer and a plug to restrict airflow passing through the air vents in one way;

15 an anchor plate made of a pliable plate corresponding to the air chamber seat having a cut away notch corresponding to the air vent of the air intake chamber and an air outlet corresponding to the air vent of the air discharge chamber; and

an air chamber cap formed in a cylindrical barrel having an air
20 supply port on one side of a top end to couple with an air duct, and an air inlet on another side thereof, the air chamber cap

further having at least one latch lug on the outer surface of the bottom thereof to engage with the L-shaped troughs to couple the air chamber cap with the upper shell.

2. The small air pump of claim 1, wherein the upper retaining rim of the bottom shell has a plurality of anchor struts on the inner wall and a lower anchor seat on one side, the lower anchor seat having a lower notch.
3. The small air pump of claim 1, wherein the jutting rim of the upper shell has a plurality of troughs.
4. The small air pump of claim 1, wherein the upper shell has an upper anchor seat on the peripheral side.